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# Stress Management and Smart Management In Prevention and Control of Hypertension

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**ABSTRACT** Through this community service, it is attempted to make the community accustomed to implementing CERDIK behavior in daily life and can make efforts to control psychological stress to prevent hypertension and control blood pressure fluctuations even though they have routinely taken antihypertensive medication. The purpose of this community service activity is to improve the competence of health cadres who provide daily education and assistance and strive to increase the role of the community independently in controlling stress and getting used to CERDIK behavior to prevent and control hypertension incidents in the community in the Tambakrejo Sutabaya Health Center area, with one Surabaya Hebat Health Cadre. The service method used is to provide training and at the same time assistance to the target Surabaya Hebat Health Cadre, in order to provide education, assistance, training in controlling psychological stress and CERDIK behavior, with an emphasis on routine health checks (checking random blood sugar, blood cholesterol, blood pressure, acute psychological stress conditions), Diligent activities and sports (by encouraging hypertension gymnastics once a week in the hypertension community group), and Managing stress (with the Affirmation-tapping method) and refreshment to maintain the behavior that exists in CERDIK.

**INDEX TERMS** model of guidance, caregiver, empowerment

## I. INTRODUCTION

Hypertension is the most common cardiovascular disease suffered by the public and is a risk factor for heart disease, kidney failure, diabetes, stroke [1] [2] . *The Institute for Health Metrics and Evaluation (IHME)* in 2017 stated that of the 53.3 million deaths in the world, 33.1% were caused by cardiovascular disease. IHME also stated that of the total 1.7 million deaths in Indonesia, the risk factor causing death was blood pressure (hypertension) of 23.7%. The incidence of hypertension at the Tambakrejo Health Center in Surabaya was ranked 7th out of 10 most common diseases in December 2023 with a total of 720 cases [3] [4] [5] . Prevention and control of hypertension is important for the entire community by implementing a SMART lifestyle and supported by independent psychological stress control in daily life [6] [7] [8] . Surveys show that more than half of hypertension patients have low psychological stress control abilities [8] [9] . Hypertension community groups carry out routine health checks and receive education on hypertension management at Posbindu-PTM provided by health cadres called "Great Surabaya Cadres" (KSH) every month. High blood pressure is the result of the last blood pressure measurement or the result of a measurement at least once a year. Measurements are carried out on residents aged more than or equal to 15 years. Measurements can be carried out in primary health care units, private government, inside or outside the building [3] .

The role and competence of KSH provide a very large contribution in changing community behavior and the ability to independently manage health and control psychological stress in order to control blood pressure and prevent further complications [6] [1] . The purpose of community service is to educate and empower the community in managing psychological stress and CERDIK management in preventing and controlling hypertension through training and mentoring of health cadres.

## II. METHOD AND IMPLEMENTATION

### 1. METHOD

Community service activities "Community Empowerment Through Stress Management and Smart Management in Hypertension Prevention and Control" is a community service program with the PPDM (Partner Village Development Program) scheme which is motivated by problems in a village or sub-district [10] . The problems faced by residents is the high incidence of hypertension and uncontrolled blood pressure of hypertensive patients in Kapanasan and Tambakrejo sub-districts, Surabaya. One of the solutions provided is to increase the role and provide knowledge and skills to Health Cadres so that they can help hypertensive patients in their environment.

Participants of the community service activity stage 1 conducted a Focus Group Discussion (FGD) with the

participants being the great cadres of Surabaya (KSH) from Kapasan and Tambakrejo sub-districts in Surabaya, the Head of the Tambakrejo Health Center and representatives from Tambakrejo Sub-district in Surabaya. Furthermore, Stage 2 will be carried out by providing materials and skills to KSH and continued with stage 3, namely the evaluation of the participants being KSH who have been trained and the community experiencing hypertension at the Posyandu under their guidance.

The techniques used in this community service are through 1) preparation stages, including: conducting FGDs with the Head of the Health Center, Village / Sub-district Government, and other stakeholders, holding meetings with KSH health cadres and community leaders followed by meetings with the community at the beginning, coordinating with stakeholders; then 2) implementation stages, including: collecting initial data, providing knowledge and skills through training to KSH on hypertension and its complications, psychological stress management and CERDIK management [11].

. Furthermore, KSH practices community education and assistance in Psychological Stress Management and Smart Management in Hypertension Prevention and Control; and stage 3) evaluation-strengthening of KSH cadres, including: collecting final data, providing feedback to KSH cadres, and suggestions & reinforcement for KSH competencies. The media used are presentation materials, laptops and LCDs, printed modules containing theoretical materials (Hypertension and its prevention, management and methods of psychological stress management, CERDIK management, blood pressure measurement and its Measurement, planning-evaluation-education-community assistance), KSH competency materials (psychological stress management therapy, blood pressure measurement, pulse, respiration, height and weight; and CERDIK implementation, and methods and planning of community education-assistance).

## 2. IMPLEMENTATION

Community service activities began when the proposal was prepared, licensing through Surabaya Single Windows (SSW) online and forwarded to the Surabaya City Health Office to the Tambakrejo Health Center, Kapasan Village and Tambakrejo Village. After the permit was obtained, coordination was carried out with stakeholders (FIGURE 1).



Figure 1. The Service Team consists of Lecturers and Students

Figure 2. Focus Group Discussion Community Service Preparation Stage



Figure 3. KSH Training Participants, attended by Tambakrejo Health Center and Kapasan Village and Tambakrejo Village

### 2.2 Training in Providing Knowledge and Skills

The results of the agreement in the FGD were that the training was attended by 42 KSH who mentored 8 Posbindu in Kapasan Village, and 1 Posbindu in Tambakrejo Village, with the planned materials and methods, as in FIGURES 2 and FIGURE 3. This activity was carried out for a full day, with the facilitators being the Health Center, the Village, and us from Pengabdi. KSH was given appreciation in the form of supporting equipment for Psobindu service activities as in FIGURE 4.



Figure 4. Community Education Practicum by KSH

After the community service activities, KSH mentoring activities were carried out, which were facilitating the community with education related to CERDIK materials and psychological stress management techniques, as well as other health education materials according to the Posbindu program. These mentoring activities are carried out every month from July, August, and September 2024, as in Figure 6. At this time, data collection of psychological stress from several communities was also carried out randomly. And the last stage is the Evaluation and strengthening of activities, where during the activity, visits and discussions were held with the



community directly related to the material that had been delivered by KSH, including random psychological stress data from community members who were present (FIGURE 5, FIGURE 6 and FIGURE 7).



Figure 5. Provision of Partner Investment to KSH in the Kapasan and Tambakrejo Sub-districts



Figure 6. Evaluation & Reinforcement to KSH, Kapasan sub-district



Figure 7. Evaluation & Reinforcement to KSH, accompanied by Devotees, Health Centers & a Tambakrejo Subdistrict

#### IV. RESULT

##### 1. Characteristics of Great Surabaya Cadres (KSH)

Participants of this community service activity are Kader Hebat Surabaya (KSH) from Kapasan and Tambakrejo sub-districts in Surabaya totaling 42 people. The gender is dominated by women totaling 41 people and one man. The average age of the participants is 48 years old, the oldest is 74 years old and the youngest is 28 years old. The average education is high school, the highest is a bachelor's degree and the lowest is junior high school.

Health cadres are volunteers who work to provide basic health services that help the community [12]. The role of Posyandu cadres in empowering the community is as health motivators, health educators and health services;

Cadres must be able to identify needs and obstacles in providing health services and be able to coordinate with community leaders and the government [13]. So cadres must at least be able to read and write so that they can carry out their role in the community.

TABLE 1

Results of BMI, Cholesterol and Blood Pressure measurements of Community Service participants.

Variables	N	Mean $\pm$ SD	Minimum	maximum
IMT	42	24.58	15	45
cholesterol	42	199 mg/dL $\pm$ 40.68	130 mg/dL	288 mg/dL
Fat	42	31.17 $\pm$ 10.58	9	45
Systolic	42	134 mmHg $\pm$ 25.137	94 mmHg	221mmHg
Diastolic	42	85 mmHg $\pm$ 15.59	54 mmHg	138 mmHg

TABLE 2

Results of the Measurement of Participants' Knowledge about Stress Management and Smart Management in the Prevention and Control of Hypertension

Knowledge	Pre test		Test Post	
	f	%	f	%
Not enough	30	71.4	13	30.9
Enough	6	14.3	23	54.8
Good	6	14.3	6	14.3
Amount	42	100	42	100

TABLE 3

Results of measuring stress levels of community service participants

Stress levels	Pre test		Test Post	
	f	%	f	%
Light	7	16.6	20	47.6
Currently	33	78.6	20	47.6
Heavy	2	4.8	2	4.8
Amount	42	100	42	100

The stress level of community service participants was mostly moderate at 78.6%, and after training it decreased by 47.6%. This can be explained that patients who received affirmations experienced reduced emotions, changing negative thought patterns to positive ones. Affirmations can also improve patients' psychological well-being and help them focus on self-confidence. Research shows that positive affirmations, along with deep breathing techniques, can lower systolic and diastolic blood pressure in hypertensive patients. This technique helps reduce the activity of the sympathetic nervous system which causes increased blood pressure [14] (FIGURE 8).





FIGURE 8. Talkshow mengantisipasi Hipertensi

The results of the average BMI measurements of the participants were all within the normal limits of 24.58. The results of the average cholesterol measurements of the participants were within the normal limits, namely 199 mg/dL $\pm$ 40.68 (table 1). Participants had a healthy body weight. Normal values Range: 18.5 - 25.0. Ideal body weight status, neither too low nor too high. This body weight provides optimal protection against various metabolic and cardiovascular diseases. Normal MT is not only a visual benchmark for physical status, but also a major indicator of the risk of metabolic and cardiovascular diseases. Therefore, maintaining a normal BMI through a balanced diet, regular exercise, and a healthy lifestyle is very important to improve overall body health. .

The mean cholesterol of the participants was also within the normal range, which was 199 mg/dL with a standard deviation of  $\pm$ 40.68mm/dL. This shows that the cholesterol levels of most participants were in good condition and did not indicate a high risk for cholesterol-related diseases, such as heart disease. Cholesterol is one of the modifiable risk factors for hypertension, including unhealthy diets (excessive salt consumption, diets high in saturated and trans fats, low intake of fruits and vegetables), lack of physical activity, tobacco and alcohol consumption, and being overweight or obese. Non-modifiable risk factors include a family history of hypertension, age over 65 years, and comorbidities such as diabetes or kidney disease [15] [16] .

In table 2 the results of systolic blood pressure measurements were 134 mmHg $\pm$ 25.137 mmHg and diastolic blood pressure 85 mmHg $\pm$ 15.59 mmHg. This condition shows that the participants' blood pressure is within normal limits (table 1). Hypertension is an increase in systolic blood pressure (SBP) of more than or equal to 140 mmHg and diastolic blood pressure (SBP) of more than or equal to 90 mmHg [9] [17], [18] .

Hypertension can be influenced by psychological factors (stress) and lifestyle. Research results show that stress causes hypertension and vice versa hypertension can cause stress due to pressure in terms of physical, psychosocial, spiritual, and economic aspects caused by

hypertension [19] . Psychological stress and physical activity increase blood pressure [20]

Acute stress causes increased blood pressure. Environmental conditions, emotional status, modern life full of busyness, deadlines, frustration and demands, are some of the main risk factors for hypertension are some of the elements that affect blood pressure through stress. Hypertension interferes with vitality, social function, mental health, mood and psychological function [21], [22]

Hypertension is divided into primary ('essential') and secondary forms. Primary or essential hypertension has an unknown cause in about 90% of cases, 7% is caused by kidney disorders and 3% is caused by hormonal disorders and other causes [23] .

## V. CONCLUSION

Kader KSH who has Good knowledge is expected to help the group public hypertension in a nany, in doing penilaian stres as well as behavior CERCIC .So it is hoped that the community can manage their blood pressure independently in a more controlled manner as a companion to hypertension drug therapy.

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